Complete Summary

GUIDELINE TITLE

Human milk storage information for home use for healthy full-term infants.

BIBLIOGRAPHIC SOURCE(S)

Academy of Breastfeeding Medicine. Human milk storage information for home use for healthy full-term infants. New Rochelle (NY): Academy of Breastfeeding Medicine; 2004 Mar 23. 2 p. [11 references]

GUIDELINE STATUS

This is the current release of the guideline.

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SCOPE

DISEASE/CONDITION(S)

Infant health/nutrition

GUIDELINE CATEGORY

Counseling
Management
Prevention

CLINICAL SPECIALTY

Family Practice
Nursing
Nutrition

Obstetrics and Gynecology
Pediatrics
Preventive Medicine

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To facilitate optimal breastfeeding practices
- To provide information on safe human milk storage for home use for healthy full-term infants

TARGET POPULATION

Breast feeding mothers and family members and caregivers handling human milk used for feeding infants

INTERVENTIONS AND PRACTICES CONSIDERED

1. Choice of proper storage container
2. Hygiene (handwashing, cleaning of containers and pumping equipment)
3. Storage of milk, including proper temperature, amounts, labeling, and adding expressed milk to stored milk
4. Thawing and warming milk

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

An initial search of relevant published articles written in English in the past 20 years in the fields of medicine, psychiatry, psychology, and basic biological science is undertaken for a particular topic. Once the articles are gathered, the papers are evaluated for scientific accuracy and significance.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Committee)
Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

I Evidence obtained from at least one properly randomized controlled trial

II-1 Evidence obtained from well-designed controlled trials without randomization

II-2 Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of the introduction of penicillin treatment in the 1940s) could also be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies and case reports; or reports of expert committees

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

An expert panel is identified and appointed to develop a draft protocol using evidence based methodology. An annotated bibliography (literature review), including salient gaps in the literature, are submitted by the expert panel to the Protocol Committee.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Draft protocol is peer reviewed by individuals outside of lead author/expert panel, including specific review for international applicability. Protocol Committee's sub-group of international experts recommends appropriate international reviewers. Chair (co-chairs) institutes and facilitates process. Reviews submitted to committee Chair (co-chairs).

Draft protocol is submitted to The Academy of Breastfeeding Medicine (ABM) Board for review and approval. Comments for revision will be accepted for three weeks following submission. Chair (co-chairs) and protocol author(s) amends protocol as needed.

Following all revisions, protocol has final review by original author(s) to make final suggestions and ascertain whether to maintain lead authorship.

Final protocol is submitted to the Board of Directors of ABM for approval.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Storage Containers

1. Hard-sided containers, such as hard plastic or glass, are the preferred containers for long-term human milk storage. These containers should have an airtight seal (Garza et al., 1982).
2. Plastic bags specifically designed for human milk storage can be used for short-term (less than 72 hours) milk storage (Garza et al., 1982; Williams-Arnold, 2002). Use of plastic bags is not recommended for long-term storage as they may spill, leak, or become contaminated more easily than hard-sided containers, and some important milk components may adhere to the soft plastic and be lost.

General Guidelines

1. Hands must be washed prior to expressing or pumping milk.
2. Use containers and pumping equipment that have been washed in hot, soapy water and rinsed. If available, cleaning in a dishwasher is acceptable; dishwashers that additionally heat the water may improve cleanliness. If a

dishwasher is not available, boiling the containers after washing is recommended. Boiling is particularly important where the water supply may not be clean.
3. Store in small portions to minimize waste. Most breastfed babies take between 2 and 4 ounces (60 to 120 mL) of milk when beginning with an alternative feeding method. Storing in 2-ounce (60 mL) amounts and offering additional amounts if the baby is still hungry will prevent having to throw away unfinished milk.
4. Consider storing smaller size portions (1 to 2 ounces [30 to 60 mL] each) for unexpected situations. A small amount of milk can keep a baby happy until mom comes to nurse the baby.
5. Several expressions throughout a day may be combined to get the desired volume in a container. Chill the newly expressed milk for at least 1 hour in the main body of the refrigerator or in a cooler with ice or ice packs, and then add it to previously chilled milk expressed on the same day.
6. Do not add warm breast milk to frozen milk because it will partially thaw the frozen milk.
7. Keep milk from one day separate from other days.
8. Do not fill the container; leave some room at the top because breast milk expands as it freezes.
9. Label containers clearly with waterproof labels and ink, if possible.
10. Indicate the date that the milk was expressed and the child's name (for daycare).
11. Expect that the milk will separate during storage because it is not homogenized. The cream will rise to the top of the milk and look thicker and whiter. Before feeding, gently swirling the container of milk will mix the cream back through again. Avoid vigorously shaking the milk.
12. The color of milk may vary from day to day, depending on maternal diet. It may look bluish, yellowish, or brownish. Frozen breast milk may also smell different than fresh breast milk (Lawrence & Lawrence, 1999). There is no reason not to use the milk if the baby accepts it.

Milk Storage Guidelines

1. Milk may be kept at room temperature (up to 77 degrees F or 25 degrees C) for 6 to 8 hours. Temperatures greater than 77°F (25°C) may not be safe for room temperature storage (Hamosh et al., 1996). Containers should be covered and kept as cool as possible; covering the container with a cool towel may keep milk cooler.
2. Milk may be stored in an insulated cooler bag with ice packs for 24 hours (Meek, 2001).
3. Milk may be safely refrigerated (39 degrees F or 4 degrees C) for up to 5 days (Sosa & Barness, 1987). Store milk in the back of the main body of the refrigerator, where the temperature is the coolest (Olowe et al., 1987).
4. The type of freezer in which the milk is kept determines timetables for frozen milk. Generally, store milk toward the back of the freezer, where the temperature is most constant (Friend et al., 1983). Milk stored for the longer durations in the ranges listed below is safe, but there is some evidence that the lipids in the milk undergo degradation resulting in lower quality (Berkow et al., 1984).
    - Freezer compartment located inside the refrigerator (5 degrees F or -15 degrees C): **2 weeks**

- Refrigerator/freezer with separate doors (0 degrees F or -18 degrees C): **3 to 6 months**
- Chest or upright manual defrost deep freezer that is opened infrequently and maintains ideal temperature (-4 degrees F or -20 degrees C): **6 to 12 months**

5. The above guidelines apply only to healthy, term infants; guidelines are different for hospitalized, sick, or preterm infants.

Thawing or Warming Milk

1. The oldest milk should be used first.
2. The baby may drink the milk cool, at room temperature, or warmed.
3. Thaw milk by placing it in the refrigerator the night before use or gently rewarm it by placing the container under warm running water or in a bowl of warm water.
4. Do not let the level of water in the bowl or from the tap touch the mouth of the container.
5. Milk may be kept in the refrigerator for 24 hours after it is thawed.
6. Never use a microwave oven or stovetop to heat the milk, as these may cause scald spots and will also destroy antibodies (Quan et al., 1992; Sigman et al., 1989).
7. Swirl the container of milk to mix the cream back in, and distribute the heat evenly. Do not stir the milk.
8. Milk left in the feeding container after a feeding should be discarded and not used again.
9. As with all foods, do not re-freeze breast milk once it is thawed or partially thawed.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting the recommendations is not specifically stated.

The recommendations were based primarily on a comprehensive review of the existing literature. In cases where the literature does not appear conclusive, recommendations were based on the consensus opinion of the group of experts.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate storage of human milk for home, day care, or other outside-of-hospital use for term healthy babies

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

A central goal of the Academy of Breastfeeding Medicine is the development of clinical protocols for managing common medical problems that may impact breastfeeding success. These protocols serve only as guidelines for the care of breastfeeding mothers and infants and do not delineate an exclusive course of treatment or serve as standards of medical care. Variations in treatment may be appropriate according to the needs of an individual patient.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Foreign Language Translations

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Academy of Breastfeeding Medicine. Human milk storage information for home use for healthy full-term infants. New Rochelle (NY): Academy of Breastfeeding Medicine; 2004 Mar 23. 2 p. [11 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004

GUIDELINE DEVELOPER(S)

Academy of Breastfeeding Medicine - Professional Association

SOURCE(S) OF FUNDING

Academy of Breastfeeding Medicine

A grant from the Maternal and Child Health Bureau, US Department of Health and Human Services

GUIDELINE COMMITTEE

Academy of Breastfeeding Medicine Protocol Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee Members: Caroline J. Chantry MD, FABM, *Co-Chairperson*; *Anne Eglash MD, FABM; Cynthia R. Howard MD, MPH, FABM, *Co-Chairperson*

**Lead author(s)*

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

None to report

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Academy of Breastfeeding Medicine Web site.

Print copies: Available from the Academy of Breastfeeding Medicine, 140 Huguenot Street, 3rd floor, New Rochelle, New York 10801.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Procedure for protocol development and approval. Academy of Breastfeeding Medicine. 2007 Mar. 2 p.

Print copies: Available from the Academy of Breastfeeding Medicine, 140 Huguenot Street, 3rd floor, New Rochelle, New York 10801.

A German translation of the original guideline document is available from the Academy of Breastfeeding Medicine Web site.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI Institute on November 1, 2007. The information was verified by the guideline developer on November 12, 2008.

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Readers with questions regarding guideline content are directed to contact the guideline developer.

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